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AUTHOR Metcalf, Fay
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ABSTRACT

This document, from the lesson plan series, "Teaching with Historic Places," explores the Johnstown Flood of 1889. An introduction reviews the historical facts of the disaster that claimed over 2200 lives and produced 17 million dollars in property damage. The document sets out objectives for students and suggests teaching activities. Sections include "Setting the Stage"; "Locating the Site"; "Determining the Facts"; and "Visual Evidence." Readings and activities accompany the sections. There is a map of the area where the flooding occurred, an illustration of the South Fork Dam, and seven photographs of the flood damage. The document also includes sections on "Further Reading" and "Visting the Sites." (SG)

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Run for Your Lives!

The Johnstown Flood of 1889

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Teaching with Historic Places

A program of the National Park Service's National Register of Historic Places and the National Trust for Historic Preservation

Run for Your Lives! The Johnstown Flood of 1889

BY FAY METCALF

On June 1, 1889, newspapers across the country bore huge headlines announcing that on the day before, Johnstown, Pennsylvania, had been ravaged by the most devastating flood in the nation's history. With railroad tracks washed away and telegraph lines down, contact with the city was completely cut off, so most early newspaper editions carried stories based on rumor, conjecture, and the accounts of a few overwrought survivors. One bold headline proclaimed, "JOHNSTOWN BLOTTED OUT BY THE FLOOD! HALF OF ITS PEOPLE KILLED!" The story that followed told of unbelievable horrors, but the truth, when it became known, was scarcely less ghastly than the fabricated tales of the "yellow" journalists of the time: more than 2,200 people were known to be dead and hundreds more were missing. Property damage amounted to $17 million. The cleanup operation would take five years, and bodies were still being found months and even years after the flood.

This lesson about the Johnstown flood is based on National Register of Historic Places nomination files and the visitor's guide to the Johnstown Flood National Memorial developed by the National Park Service. Materials for students include (1) readings which provide a chronology of the flood and examine the events which led up to it, (2) a map of the Johnstown floodplain with notes, and (3) contemporary photographs which show the terrible aftermath of the disaster. The lesson could be used in teaching a unit on the rise of American industrialization and the Gilded Age or on understanding the relationship of technology and the environment.

Objectives for the Students

- To analyze the reasons people shrug off the potential for disasters such as the Johnstown flood.
- To outline the circumstances that caused the flood and to explain how it could have been prevented.
- To use maps and photographs as well as the written record to analyze a historical event.
- To describe humanitarian responses to such disasters.
- To research local history to see if any "human caused" disasters have occurred in their region.

Teaching Activities

Setting the Stage

Explain to students that the Johnstown Flood National Memorial commemorates the most devastating flood of the 19th century in the United States and the greatest national catastrophe in the post–Civil War era. The Johnstown Flood was caused by the giving way of the South Fork Dam and is an example of what happens when people disregard principles of engineering and hydrology. The flood has provided a vast literature with important lessons for environmental management today. At present, all that remains of the historic earthen dam (originally about 900 feet long and 75 feet high) are the north and south abutments, the spillway cut around the north abutment to carry off excess water, and a few remnants of wood and culvert foundation stones representing the location of the control mechanism.

The story of the break of the South Fork Dam begins innocently enough. The dam had been built between 1838 and 1853 by the Commonwealth of Pennsylvania to provide water for the operation of the Western Division of the Pennsylvania Mainline Canal between Johnstown and Pittsburgh. Located some twelve miles east of Johnstown at a point where the South Fork branch of the Little Conemaugh River and several mountain streams converged, the dam created what was, at the

time, one of the largest artificial lakes in the nation, more than two miles long and nearly a mile wide in some places. The Pennsylvania Railroad Company purchased the entire Mainline works in 1857 and left the dam and the reservoir virtually unattended.

In 1879 a group of wealthy industrialists formed the South Fork Fishing and Hunting Club and bought the dam and the reservoir for a private summer resort. By 1881 the dam had been repaired—without benefit of an engineer—and the reservoir filled to capacity to form the now nearly three-mile-long Lake Conemaugh. A clubhouse with 47 rooms fronted the lake. From its large porch, members could watch the club's two steam yachts setting off on excursion trips. A number of club members built large cottages nearby. For the next eight years the summer resort offered fishing, hunting, boating, and other recreational opportunities for club members, until, in 1889, the dam broke and their lake disappeared. The national response to the catastrophe was (1) humanitarian—a large outpouring of aid to the survivors from citizens of the United States and abroad, as well as the opportunity for the fledgling Red Cross to prove its worth; and (2) the development of environmental and engineering regulations meant to prevent another such calamity.

Locating the Site

Provide the students with copies of the attached map and a map of Pennsylvania to complete the following exercise:

Locate Johnstown and St. Michael, the site of the South Fork Fishing and Hunting Club's lodge and cottages, first on the state map and then on Map Exhibit 1. Note the south fork of the Little Conemaugh River, its junction with the north fork, and the course of the Little Conemaugh to Johnstown.

The elevation at the dam site is about 1,650 feet with surrounding hills attaining heights as great as 1,893 feet. The elevation of Johnstown is 1,174 feet. After further examination of the map of the flood course, write a paragraph speculating on the following:

- What happened to the people in the town of South Fork (1)?
- What happened when the flood waters reached the oxbow and the viaduct (2)?
- How did the flood waters affect Mineral Point (3), East Conemaugh (4), Woodvale (5), and Johnstown (6)? (The answers to these speculative questions appear in "Notes to the Map." You may wish to provide these notes as soon as the students have written their predictions, or to wait until after they have read Readings 1 and 2.)

The purpose of the exercise is to help students to think about the terrain and surroundings of a particular site. The point to be made is that when the South Fork Dam was breached, the lake waters followed their natural course downhill along the river, growing stronger and more destructive as the flood waters picked up and carried along everything in their path. When Lake Conemaugh broke through the South Fork Dam it had the velocity and depth of the Niagara River as it goes over the falls. At times the tons of debris gathered by the wave caused it to choke up in the narrow valley, stop momentarily, then explode forward again with greater power. The debris actually spared Johnstown even worse destruction, as it slowed the wave to a maximum speed of about 40 miles per hour. The water would have reached 60 to 90 miles per hour if it had been able to rush unimpeded down the valley.

Determining the Facts

Reading 1: A Roar Like Thunder

Have the students complete Student Reading 1 and then answer the following questions:

a. Why was the location of Johnstown a problem?

b. What posed an additional danger to the city?

c. Describe the flood that rolled into Johnstown.

d. The flood lasted only 10 minutes, but the destruction and fear continued through the night. Describe those events.

e. What did the survivors find when dawn broke the following morning?

Briefly review the answers to these questions to ensure that all students understand the events of the flood.

Reading 2: Our Misery Is the Work of Man

Have the students complete Reading 2 and answer the following questions:

a. Why did people ignore warnings that the South Fork Dam might break?

b. Who owned the South Fork Fishing and Hunting Club? Why had they bought the dam and lake? What changes had they made to the dam?

c. Why did some townsfolk worry and complain about the dam? What response did they receive when they asked that the dam be strengthened?

d. What did John Parke, the company engineer, do to try to prevent flooding?

e. How did Parke resolve his moral dilemma? What would you nave chosen to do? Why?

f. How much water did the three miles of lake contain? How far did the water drop from the dam to the city of Johnstown?

g. How long did it take for the water to move from the dam to the city?

Visual Evidence

Have the students examine photos 1–6, which show the aftermath of the flood. Ask them to speculate on why some buildings appear undamaged and others are upended or crushed. Discuss what might have caused people to stand on the roofs of preserved buildings and crushed buildings alike, or to climb out on a tree that had speared a house. Have the students examine the clothing of the people in the pictures, guiding them to note how dressed up the people are in the obviously posed pictures as compared with the photo showing rescue workers hunting for survivors and bodies.

Some of these photographs were taken by townspeople who wanted a record of an important and devastating historical event that touched them personally. Others are the work of journalists who wanted the photos to accompany their "big" stories. Discuss with the students which photos they would choose if they were trying to describe the disaster for a national audience.

Putting It All Together

Briefly review the causes and events of the Johnstown Flood. If you are using the lesson in an American history course, ask the students to see if the Johnstown flood is listed in the index of their textbook. If it is, compare that description with the materials for this lesson. Then, ask the students to suggest reasons why a disaster of the magnitude of the Johnstown flood might be described only briefly in a textbook or left out all together. Next, have the students look up Andrew Carnegie and Andrew Mellon in the index and read the pages listed. It should become clear that textbook writers tend to select materials that best represent the American past. The great industrial revolution that followed the Civil War and Reconstruction changed the landscape of the nation; Carnegie and Mellon were two of the men who wrought that change. Their role as members of the South Fork Fishing and Hunting Club would not merit mention in that context.

The changes caused by the disaster at Johnstown were less noticeable nationwide, but in the long term very important. A greater sense of public responsibility for the safety of all citizens led to more stringent rules and regulations regarding the building of dams as well as increased concern that environmental and engineering principles be applied to any structure that could in any way be a danger to the populace. Adherence to those regulations and principles has now become so routine that, unless a problem arises, they are no longer considered news, or the stuff of textbooks.

Have the students summarize what they have learned in this lesson by taking part in one of the following activities:

Activity 1: Investigating the Community

Read local history books and interview older members of the community to see if any disasters occurred in the area in the past. If so, find out:

a. if the people involved were warned and able to escape.

b. who or what caused the disaster.

c. if the event could have been avoided, and if so, by what means.

Activity 2: Averting a Disaster

1. Divide the class into groups of 4 or 5 students, with one student per group acting as recorder. Ask each group to develop a list of local, regional, national, or international sites, events, and issues that have the potential to become a disaster or a crisis (some possibilities are a nuclear accident such as that at Chernobyl, the "big" earthquake on the West Coast, losing the battle to protect the region's forests, or poisoning of the local water supply through an industrial accident).

Have the groups then list the possible causes of such disasters and the means of preventing them by considering (1) moral and ethical concerns, (2) technological concerns, and (3) legal and political concerns. Next, have the entire class discuss each group's list. Ask them to select two or three scenarios that realistically could result in averting a disaster.

2. Have the students, individually or in small groups, choose a single one of these sites, events, or issues to research and then prepare a report for presentation to the class. This report should include location (absolute and relative); the places that would be involved in the event—those places with human habitation or which have been modified by human activity; and human-environmental interactions related to the site, event, or issue. Students should conclude their reports by describing a step-by-step action plan for averting or mitigating the disaster. If the reports are of high quality, you may wish the class to vote on the most realistic and effective report and then invite appropriate local and

regional authorities to visit the class to discuss the action plans.

Activity 3: After the Flood—Johnstown Inclined Railway

Ask the students to examine Photo 7 and note the narrowness of the valley and the concentration of buildings in the town. It is evident that although there is no longer a dam poised above the city, flooding from heavy rains seems very possible. The students then complete Reading 3 and consider whether any such "safety" devices have been constructed in their community. Note that such public works generally are created in a certain place and time and for specific reasons. The Johnstown Inclined Railway was certainly built as an escape route, but it also served as transportation for many of the workers at the Cambria Iron Company who lived in Westmont, a housing area built above Johnstown. After good roads were built, use of the railway declined. Still, the people of the region cared enough about it to spend public funds to restore the railway. The students should discuss any comparable restoration that has taken place in their community and vote on whether or not public money should be spent in such a manner. They may wish to discuss the outcome of the vote.

Further Reading

The students might wish to read more about the Johnstown flood and report their findings to the class. The most easily obtained source is David G. McCullogh, *The Johnstown Flood* (1968). Also useful, but harder to find, is Richard O'Connor, *Johnstown: The Day The Dam Broke* (1957).

Visiting the Sites

A unit of the National Park Service, the Johnstown Flood National Memorial is open to the public, and is located northeast of Johnstown, Pennsylvania, along U.S. 219 and PA. 869 at the South Fork Dam site. The former Cambria Iron Company occasionally is open for tours under a cooperative agreement with the National Park Service. For information, contact the Visitor Center, Johnstown Flood Memorial, P.O. Box 355, St. Michael, Pennsylvania 15951.

The Johnstown Flood Museum, located in Johnstown, is operated by a nonprofit association. In addition to exhibits, the museum features a 26-minute Academy-Award-winning movie, "The Johnstown Flood" (which was incorporated into a longer film for the *America* series produced by a partnership of public television stations). The film is available on video for $24.95, plus shipping and handling, from the Johnstown Flood Museum, 403 Washington Street, Johnstown, Pennsylvania 15901.

The Johnstown Inclined Railway is operated by the Cambria County Transit Authority, and runs between Johns Street and Edgehill Drive, where a visitor's center is located. For information, contact the Cambria County Transit Authority, 726 Central Drive, Johnstown, Pennsylvania 15902; or the Johnstown Inclined Railway Visitor's Center, 711 Edgehill Drive, Johnstown, Pennsylvania 15905.

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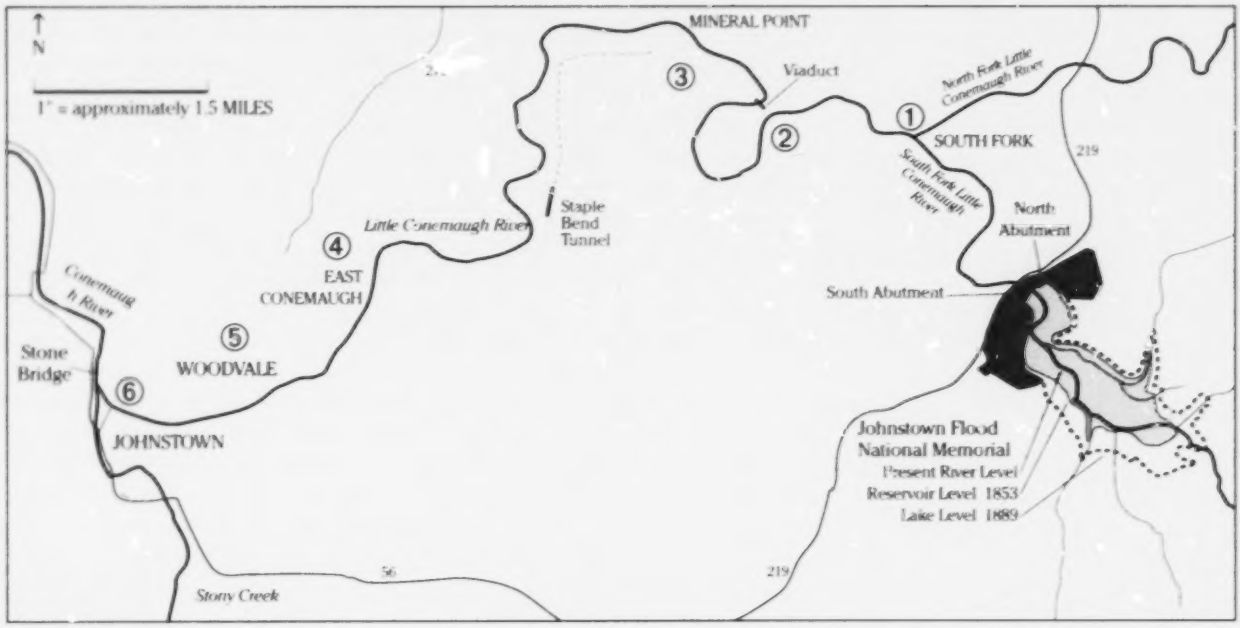
Map Exhibit 1



In the Flood's Wake

Notes to Map Exhibit 1

1. After the lake broke through the dam, the first town struck was South Fork, two miles downstream. The flood claimed its first four victims and 20 to 30 homes were destroyed.

2. When the wave reached the two-mile long oxbow in the river it split. Part of the wave left the river channel here, crossed the oxbow, and hit the 75-foot-high stone viaduct. Because the water was choked with debris by this time, it was temporarily dammed at the arch. The greater part of the flood followed the oxbow, and crashed into the viaduct six to seven minutes later. For a brief moment, the wreckage at the viaduct created a second dam for Lake Conemaugh. When the viaduct collapsed, it did so with even greater violence than the South Fork Dam.

3. A mile below the viaduct the sawmill town of Mineral Point was struck by the renewed force of the wave. Thirty families lived on the village's main street, but when the flood had passed, only bare rock remained. Sixteen people died.

4. The wave headed toward East Conemaugh. A witness said the water by now was almost obscured by the debris, resembling "a huge hill rolling over and over," tossing up logs high above its surface. Before the flood hit East Conemaugh, train engineer John Hess tried to warn the residents by tying his train whistle down and racing toward town ahead of the wave. His warning saved many, but 50 people died, including about 25 passengers on trains that had been stranded in the town by earlier flooding caused by the rain.

5. As the river straightened out between East Conemaugh and Woodvale, the flood gathered speed and power. Woodvale had no warning. Part of a mill was all that was left standing after the flood struck. Of 1,100 residents, 314 died. When the Gautier Wire Works were hit, boilers exploded creating what flood survivors in Johnstown called the black "death mist."

6. The flood hit Johnstown with full force, bearing the remains of the Conemaugh Valley. The time was 4:07 p.m., 57 minutes after the dam had broken. Again, the wave split, sparing some buildings in the center of town. Still in use is the stone bridge, where the mass of debris, animals, and humans piled up and caught fire, taking 80 lives. By now, the torrent had spent its force and the wave continued to break up and lose speed as it continued its downward course. It caused no more damage.

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Reading 1: A Roar Like Thunder

Johnstown in 1889 was a town of German and Welsh immigrants. With a population of 30,000, it was a growing and industrious community known for the quality of its steel. Founded in 1794, Johnstown began to prosper with the building of the Pennsylvania Mainline Canal in 1834 and the arrival of the Pennsylvania Railroad and the Cambria Iron Company in the 1850s.

There was one small drawback to living in the city. Johnstown had been built on a floodplain at the fork of the Little Conemaugh River and Stony Creek. Because the growing city had increased the runoff from the surrounding hills by stripping them for wood, and had narrowed the river banks to gain building space, the heavy annual rains had caused increased flooding in recent years.

Furthermore, fourteen miles up the Little Conemaugh, three-mile-long Lake Conemaugh was held on the side of a mountain—450 feet higher than Johnstown—by the old South Fork Dam. It had been poorly maintained, and every spring there was talk that the dam might not hold. But it always had, and the supposed threat became something of a standing joke around town.

But at 4:07 on the chilly, wet afternoon of May 31, 1889, the inhabitants heard a low rumble that grew to a "roar like thunder." Some knew immediately what had happened: after a night of heavy rains, South Fork Dam had finally broken, sending 20 million tons of water crashing down the narrow valley. Most never saw anything until the 36-foot wall of water, already boiling with huge chunks of debris, rolled over them at 40 miles per hour, consuming everything in its path. Those who did see it said it "snapped off trees like pipe stems," "crushed houses like eggshells," and "threw around locomotives like so much chaff." A violent wind preceded it, blowing down small buildings. Making the wave even more terrifying was the black pall of smoke and steam that hung over it—the "death mist" remembered by survivors.

Thousands of people desperately tried to escape the wave, but they were slowed as in a nightmare by the 2 to 7 feet of water already covering parts of town (this flooding was typical in seasons of heavy rain, and it had been raining heavily that spring). One observer from a hill above the town said the streets "grew black with people running for their lives." Some remembered reaching the hills and pulling themselves out of the flood path seconds before it overtook them. Those caught by the wave found themselves swept up in a torrent of oily, yellow-brown water, surrounded by tons of grinding debris, which crushed some, provided rafts for others. Many became helplessly entangled in miles of barbed wire from a destroyed wire works. People indoors when the wave struck raced upstairs seconds ahead of the rising water, which reached the third story in many buildings. Some never had a chance, as homes were immediately crushed or ripped from foundations and added to the churning rubble, ending up hundreds of yards away. Everywhere people were hanging from rafters or clinging to rooftops and railcars being swept downstream, frantically trying to keep their balance as their rafts pitched in the flood.

It was over in 10 minutes, but for some the worst was still to come. Thousands of people, huddled in attics or on the roofs of buildings that had withstood the initial wave, were still threatened by the 20-foot current tearing at the buildings and jamming tons of debris against them. In the growing darkness, they watched other buildings being pulled down, not knowing if theirs would last the night. But the most harrowing experience for hundreds came at the old stone railroad bridge below the junction of the rivers. There, thousands of tons of debris scraped from the valley, along with a good part of Johnstown, piled up against the arches.

The 45-acre mass held buildings, machinery, hundreds of freight cars, 50 miles of track, bridge sections, boilers, telephone poles, trees, animals, and 500 to 600 humans. The oil-soaked jam was immovable, held against the bridge by the powerful current and bound tightly by the barbed wire.

This student reading was compiled from the National Park Service visitor's guide for the Johnstown Flood National Memorial, 1989.

Reading 1: A Roar Like Thunder (continued)

Those who were able began scrambling over the heap toward shore. But many were trapped in the wreckage, some still hopelessly hung up in the barbed wire, unable to move. Then the oil caught fire. As rescuers worked in the dark to free people, the flames soread over the whole mass, burning with "all the fury of hell," according to a Johnstown newspaper account. Eighty people died at the bridge, some still in their own homes.

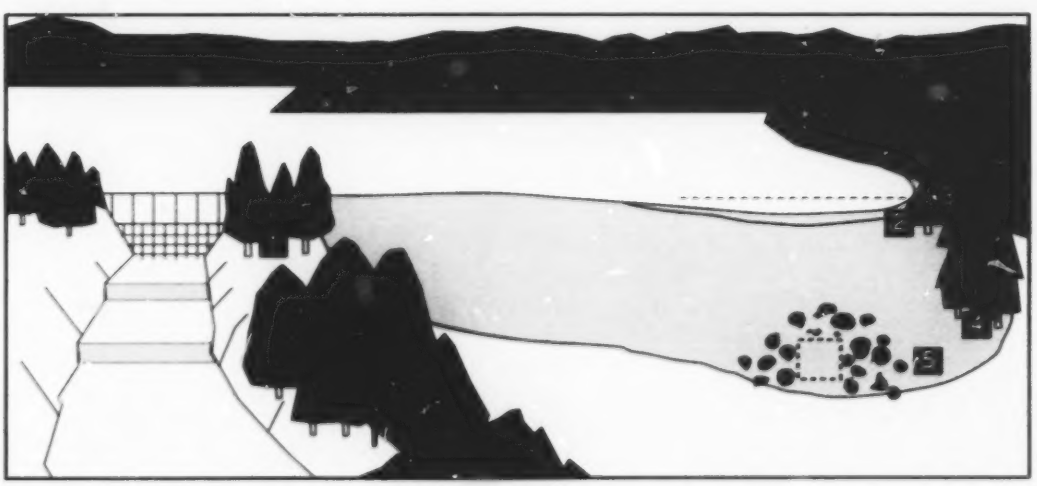
The next morning survivors were unsettled by the eerie silence hanging over the city. During the night the waters had receded, revealing vast heaps of mud and rubble filling streets—where there were still streets—up to the third story. Entire blocks of buildings had been razed. Hundreds, alive and dead, were buried beneath the ravaged city. Many bodies were never identified, and hundreds of the missing were never found. As everyone had dreaded, disease followed in the wake of the flood, and typhoid added 40 more lives to the 2,209 that had already died. Emergency morgues and hospitals were set up, and commissaries distributed food and clothing. The nation responded to the disaster with a spontaneous outpouring of time, money, food, and clothing. Contributions from the United States and abroad totaled over $3,700,000. The flood also provided the newly formed American Red Cross under the leadership of Clara Barton with its first test. Barton and her staff of 50 doctors and nurses arrived in Johnstown five days after the flood. After surveying the scene, she set up hospital tents and built six Red Cross "hotels" for the homeless. Barton and her crew remained in Johnstown until October, when the city was finally able to begin rebuilding itself.

Reading 2: Our Misery Is the Work of Man

Why weren't the people of Johnstown warned? They were—three times in the hours before the flood—but they had heard those warnings for years. The South Fork Dam, one of the largest earthen dams in the world, had always held during high water before. And wasn't the dam being maintained by some of the richest and most powerful men in America?

The South Fork Fishing and Hunting Club, made up of Pittsburgh industrialists and businessmen like Andrew Carnegie and Andrew Mellon, had bought the lake and dam 10 years earlier as an exclusive and somewhat secret summer retreat. The reservoir was originally built to supply water for the Pennsylvania Mainline Canal. The dam had been built according to accepted engineering practices of the time, but the canal system was obsolete by the time the dam was completed in 1853. The Pennsylvania Railroad bought the dam four years later. In 1862 a break occurred near the discharge pipes, but little damage resulted because the water level was so low. The railroad abandoned the dam, and it deteriorated until 1879, when it was bought by the South Fork club, which repaired the dam carelessly and without the advice of engineers.

At first the 72-foot-high dam frightened some residents. Said one, "No one could see the immense height to which that artificial dam had been built without fearing the tremendous power of the water behind it. . . . People wondered and asked why the dam was not strengthened, as it certainly had become weak, but nothing was done, and by and by they talked less and less about it." Others, realizing their continuing vulnerability, called the dam "the sword of Damocles hanging over Johnstown." Daniel J. Morrell, president of Cambria Iron Company, was one of those worried about the dam. The first president of the South Fork club, Benjamin Ruff, refused Morrell's repeated requests that the dam be strengthened, saying, "You and your people are in no danger from our enterprise."



South Fork Dam

Changes made by South Fork Club to dam:

1 Fish trap built across the spillway. In heavy rains, debris clogged trap and spillway.
2 Club didn't repair two-to-four-foot sag in middle.
3 Dam cut down by one to three feet. This and sag meant center of dam—the part bearing greatest pressure and which should have been highest point—was only four feet above the bottom of spillway.
4 Stone rip-rap covering face of dam was poorly maintained.
5 Discharge pipes not replaced. Culvert holding pipes carelessly filled in.

This student reading and the notes to the illustration were compiled from the National Park Service visitor's guide for the Johnstown Flood National Memorial, 1989.

Reading 2: Our Misery Is the Work of Man (continued)

The dam was put to the test on May 30, 1889, when unusually heavy rains hit the area. In Johnstown people made the usual preparations for flooding, but up at South Fork Dam, John Parke, the club engineer, knew things were more serious, as he watched the lake rising an inch every 10 minutes. He knew that once the water ran over the top of the earthen dam, it would cut through it like a knife and the whole thing would go. His workers desperately tried to dig another spillway and increase the height of the dam, but the water was rising too fast. Parke was caught in a painful dilemma. He could cut through the end of the dam, where the pressure was less, so it would give way more slowly and reduce the water's destructive force. But afterwards, how could he prove that the dam would have gone anyway? People would know only that he was the one who destroyed the dam and flooded the valley. He chose not to do it.

When the dam started to go at 3:10, Parke later wrote, "the fearful rushing water opened the gap with such increasing rapidity that soon after the entire lake leaped out. . . . It took but forty minutes to drain that three miles of water." One observer said the break "roared like a mighty battle." Twenty million tons of water took its natural course, dropping 450 feet in 14 miles, at times 70 to 75 feet high and reaching speeds of 40 miles per hour. Now all the telegraph and telephone lines were down, and no more messages could be sent to Johnstown. In 57 minutes the wave would engulf the town. Over 2,200 people were tragically unaware that death was already moving down the valley.

Reading 3: The Johnstown Inclined Railway

The inclined plane railway was built as a "lifesaver" after the Johnstown Flood. It was constructed with a 986.5-foot runway at 71 percent grade. The wheels, rails, and other parts were adapted from standard railroad equipment by the Cambria Iron Company which built the railway, at least in part, to provide easy transportation for the residents of the iron company's new real-estate development, the town of Westmont. The lower entrance to the railway, crossing Stony Creek, consisted of a heavy iron bridge constructed with three-foot-thick iron girders and supported by immense stone abutments. The railway itself was made up of two cable-driven cars, each of which weighed 42 tons with a 15-ton capacity. The cable was 2 inches in diameter, 1130 feet in length, and consisted of one pulling cable and one safety cable capable of supporting over 165 tons. The unique design of the cars provided a level ride for horses and wagons (and later cars and trucks) and pedestrians. Because of its convenience and access to the heart of the business district, the railway was directly responsible for Westmont's development into one of the nation's first residential suburbs.

In 1935 Bethlehem Steel,the successor to the Cambria Iron Company, sold the railway to Westmont for $1.00. The next year, on March 17, it carried more than 4,000 men, women, and children to safety from the flood waters of the Conemaugh River and Stony Creek. In 1962, the railway was restored and operated under the auspices of the Cambria County Tourist Council and the Johnstown Chamber of Commerce. By 1972, the inclined railway had carried over 40 million passengers and countless vehicles with the loss of only one life due to an accident involving a truck on one of the railway cars and not because of equipment malfunction. It is one of the longest and steepest hoists in the world and one of the few transportation systems of its kind still in existence.

Photo 7. Johnstown Inclined Railway, Johnstown, Pennsylvania. (Cover Studio, Johnstown, Pennsylvania, c. 1972)

This student reading was compiled from the National Register nomination form "Johnstown Inclined Railway" (Cambria County, Pennsylvania), Pennsylvania Historic Sites and Landmarks, 1972.

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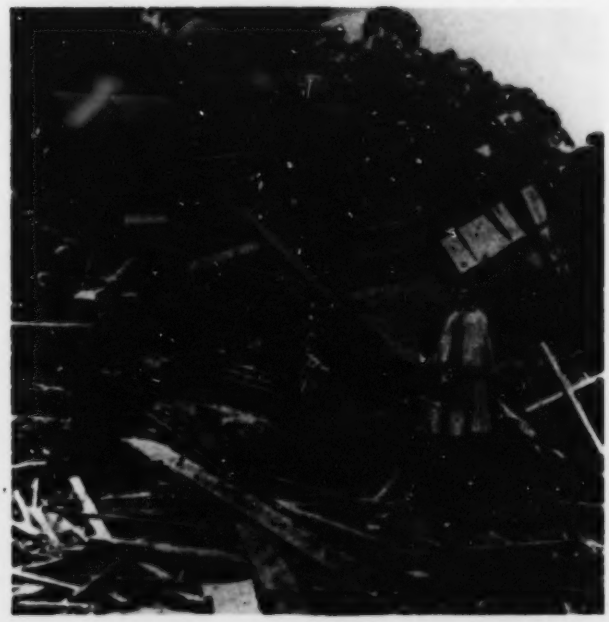

Photo 1. Shattered buildings were thrown into piles three stories high, completely filling some blocks.

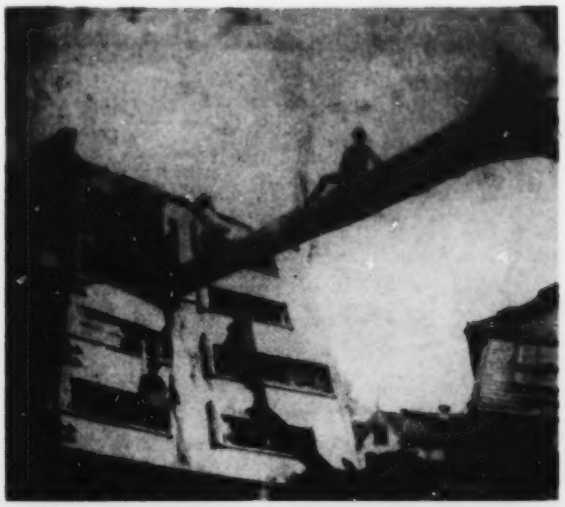

Photo 2. The flood snapped large trees like sticks and turned them into battering rams that could pierce walls.

Photo 3. A jam at the stone bridge caused a 10-by-15-foot lake over Johnstown. The fire there, probably caused by oil and hot coals, burned for two days.

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Photo 4. As soon as the water receded, rescue workers began searching for survivors and bodies. Some waited days to be rescued.

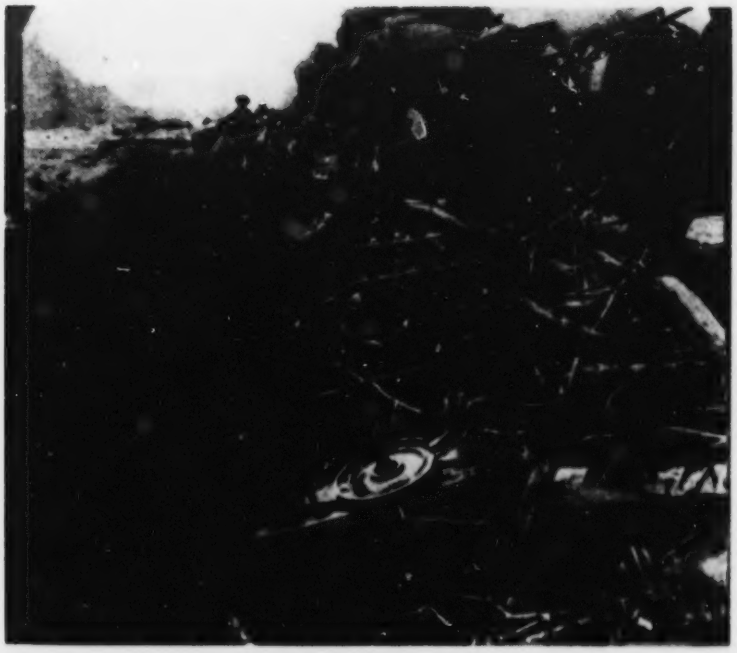

Photo 5. Locomotives at the East Conemaugh trainyard were thrown around like toys, some ending up a mile away.

Photo 6. Very little withstood the wave as it tore through Woodvale. Most of the town was reduced to mud flats. The destruction of the wire works released miles of barbed wire, adding to the terror of those caught in the flood. (July 1889)

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